

**FREEZING AND THAWING RESISTANCE OF CONCRETE
INCORPORATING CLASS C FLY ASH**

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ABSTRACT

Expansions resulting from freezing and thawing are often a major cause of damage to structures such as pavements, retaining walls, etc. Data on freeze-thaw resistance of concrete containing large quantities of Class C fly ash is limited. Therefore, this research was undertaken to investigate freeze-thaw durability of concrete made with Class C fly ash.

Air entrained concrete mixtures were designed to replace cement with fly ash in the range of 0 - 70%. All concrete mixtures were tested for compressive strength and freeze-thaw durability. Freeze-thaw durability of concrete was measured in accordance with ASTM C-666, Procedure A. All concrete mixtures containing fly ash to replace cement up to 70% passed the freezing and thawing requirements per ASTM C-666.